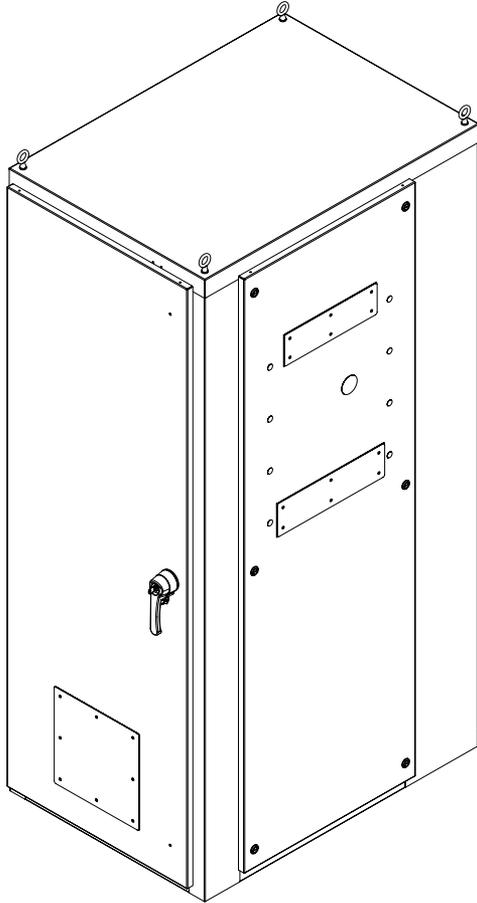




# NEMA 12 Cabinets Installation Instructions



GreatCabinets.com

**1.866.879.4522**

Instructions for the following Great Lakes Cabinets:  
GL840N12-2442-SA, GL840N12-2442-SB, GL840N12-2442-SC, GL840N12-2442-SS,  
GL840N12-3042-SA, GL840N12-3042-SB, GL840N12-3042-SC, GL840N12-3042-SS

## PREFACE

This manual is provided to prevent service personnel from committing an act that results in the risk of fire, electric shock, or injury to persons. Only trained service personnel should receive, unpack, and assemble the NEMA Cabinets. In addition, only trained service personnel should install equipment in cabinets.

## SAFETY SYMBOLS USED IN THIS MANUAL

This manual provides general safety guidelines to be observed during installation, operation, and maintenance of the NEMA Cabinet.



**WARNING:** Failure to follow directions in the warning could result in injury to persons or loss of life.

## SAFETY CONSIDERATIONS



**WARNING:** Improper handling and use of the NEMA Cabinet could result in equipment damage, serious injury, or possible death.

Only trained service personnel should be used to remove the enclosure from the pallet. Also, be sure you have a sufficient number of service personnel. Do not attempt to move enclosures by yourself.

Be sure to read and follow all individual manufacturer equipment manuals for safety and installation instructions.

Proper spacing is required when installing electrical equipment to avoid electrical shock. Maintain minimum spacing between the accessories and components and the computer cabinet assembly for safe operation of the equipment when installed in accordance with the National Electric Code ANSI/NFPA 70-1999.

The ambient temperature operating range for the NEMA Cabinet and accessories is +50 to +95° F (+10 to +35° C).

The non-operating temperature is -4 to +140° F (-20 to +60° C).

## SERVICE

The NEMA Cabinets should be repaired by personnel trained by Great Lakes, or returned to Great Lakes for repair or replacement. Contact Great Lakes Technical Support at 814.734.7303 or at [GreatCabinets.com](http://GreatCabinets.com)

## WHAT'S INCLUDED

- NEMA unit (assembled)
- 3/8" SQ. hole mounting rails (includes M6 cage nuts and 12mm long screws)

NEMA weight capacity: 5000 lbs. when bolted to the floor

## INSTALLATION

### Receiving, Unpacking, and Removing the NEMA Cabinet from pallet

Inspect and report any damage before receiving. Unpack the cabinet by carefully removing the corrugated carton and corners. Avoid damaging the cabinet when removing packaging.



**WARNING:** Only trained service personnel should be used to remove the cabinet from the pallet. Also, be sure you have a sufficient number of service personnel. Do not attempt to move cabinet by yourself.



**WARNING:** Be careful when moving cabinets before installation. Sudden stops and starts, excessive force, obstructed routes, and uneven floor surfaces may cause the enclosure to topple over.

### Loading Equipment



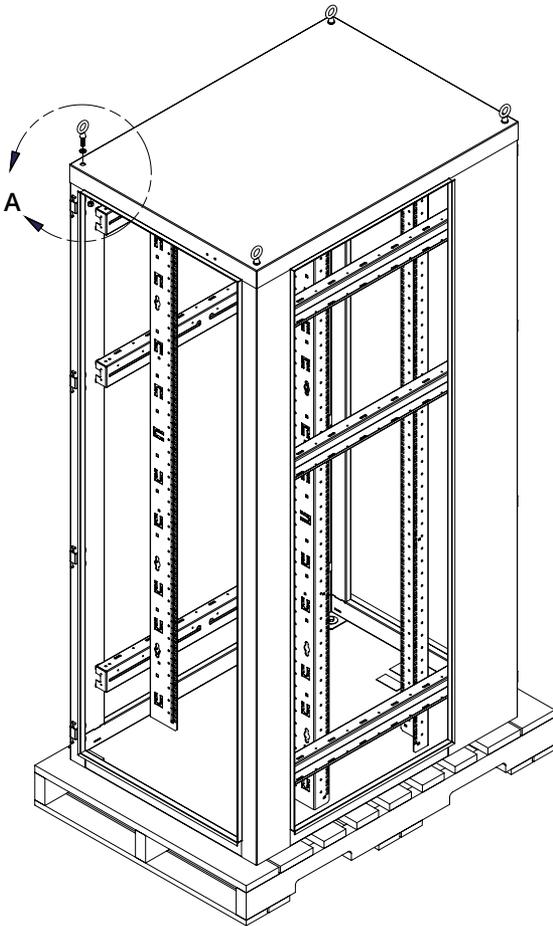
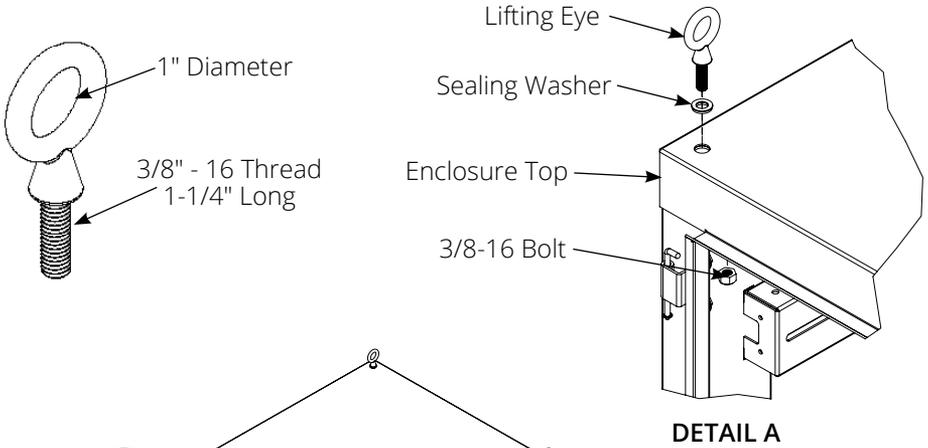
**WARNING:** Only install equipment after the NEMA Cabinet has been properly secured. Do not move the NEMA Cabinet assembly while loaded.

Rated or maximum load capacity for the NEMA Cabinet is 5000 pounds when bolted to the floor.

To maintain a uniform distribution of the mechanical load in the NEMA Cabinet, load the heaviest equipment first, at the bottom of the NEMA Cabinet and load the lighter units at the top.

# LIFTING EYE BOLTS

The NEMA 12K cabinet ships with four lifting eye bolts installed. Eye bolts must remain installed for cabinet to maintain its NEMA rating.



# OPERATING DOOR HANDLE

- The cabinet includes front and rear doors with locking handle and three point latching

## TO OPERATE

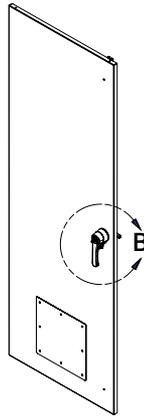
- Insert key and turn key 90° and lift up on the hasp simultaneously
- Rotate the handle clockwise; This will release the top, bottom and center door compression

## TO CLOSE

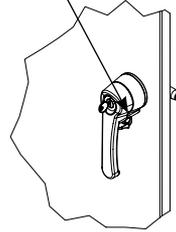
- Have the handle in the open position
- Put slight pressure on the door against the enclosure frame to make sure all three points will close
- Return the handle to the vertical position



**WARNING:** When door is open, AC should be shut off to prevent condensation.



Can accommodate  
3/8" hasp lock



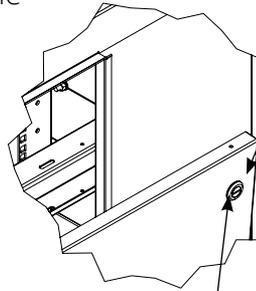
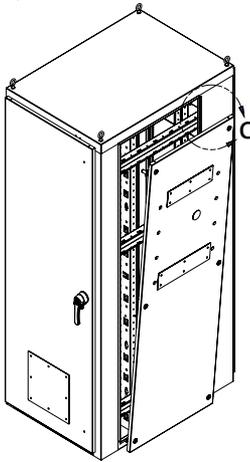
**DETAIL B**

# SIDE PANEL REMOVAL



**WARNING:** Side panels should not be removed if an air conditioning (AC) unit is attached. Remove AC unit before removing side panel.

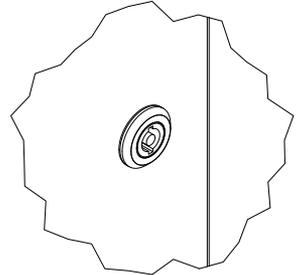
- Side panels are secured to the frame using slotted non-locking quarter turn latches or for additional security, 5mm double bit quarter turns available



Removable AC side panel

Slotted Non-locking Quarter Turns

**DETAIL C**



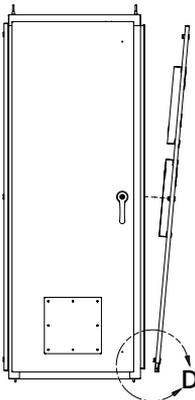
5mm Double Bit Quarter Turn  
(Key Included)

## TO REMOVE

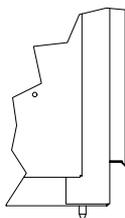
- One person rotates ¼-turn latches counter clockwise while another person holds the panel for removal
- Tilt the top of the side slightly away from the cabinet and lift up and away

## TO INSTALL

- Ensure the bottom edge of stiffener is touching the bottom flange of the cabinet
- Rotate ¼-turn latches clockwise



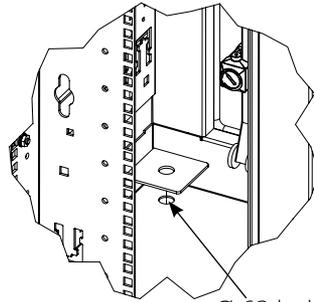
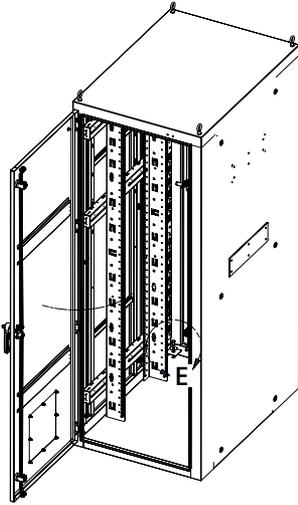
**DETAIL D**



Make sure bottom edge of stiffener engages flange of bottom panel

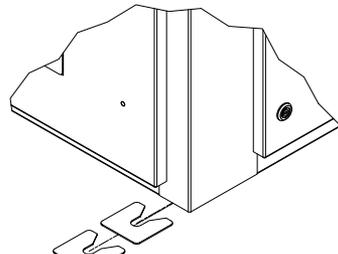
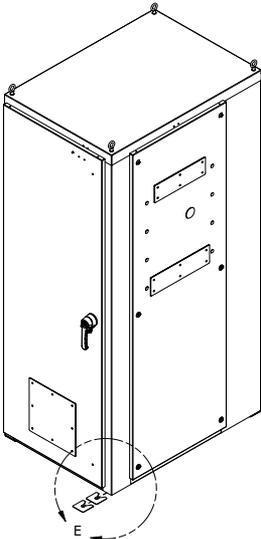
# ANCHOR MOUNTING & LEVELING THE CABINET

- It is recommended that the GL840N12 cabinet is secured to the floor
- The cabinet has four  $\text{\O}.63$ " diameter anchoring holes for this purpose
- Please use the appropriate hardware for your application. Note: Great Lakes offers the AK101 Seismic anchoring kit for cement floor (Please visit [GreatCabinets.com](http://GreatCabinets.com) for more info)
- Use included shim plates (8) to level the cabinet; use as many as needed



**DETAIL E**

$\text{\O}.63$  hole for anchoring to floor; comes with anchor plate.



8 shims are included; use as many as necessary to level cabinet

# MOUNTING RAILS & ADJUSTMENT

## 24"W Cabinets

- Two pairs of powder coated mounting rails for 19" EIA 310-EIA equipment are installed in 24"W cabinets
- Universal 3/8" sq. (M6) rails with RMU markings on all rails are standard

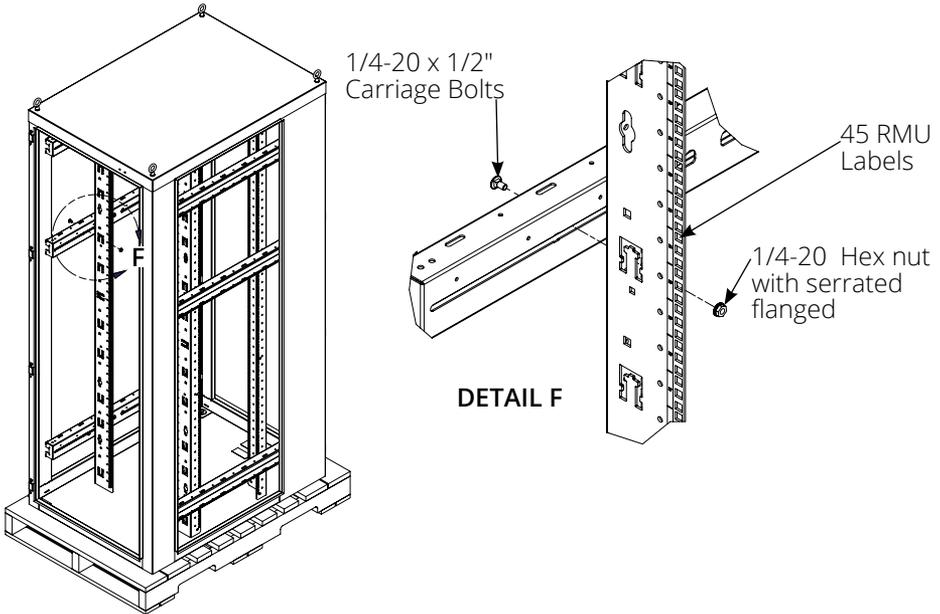
## 30"W Cabinets

- Two pairs of powder coated mounting rails for 19" or 23" EIA equipment are installed in 30"W cabinets
- The cabinet will ship with rails set for 19" EIA, unless specified for 23" at the time of order. The customer can also convert rails from 19 to 23" mounting.
- Rails in 30"W cabinets feature accessory mounting locations: "T" slots for cinch straps and square hole pattern for optional 1/4-turn "D" rings
- Universal 3/8" sq. (M6) rails with RMU markings on all rails are standard

## RAIL DEPTH ADJUSTMENT

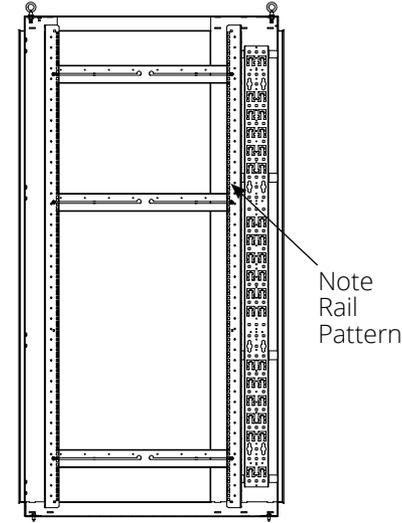
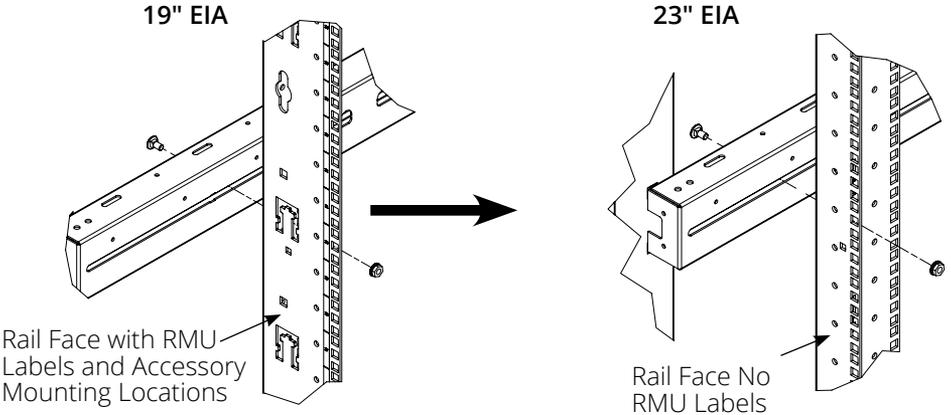
- Do not attempt to adjust rails once equipment has been loaded

1. To ADJUST, loosen the rail hardware along the top, center, and bottom horizontal
2. Slide rails to appropriate placement and tighten all hardware to secure rails

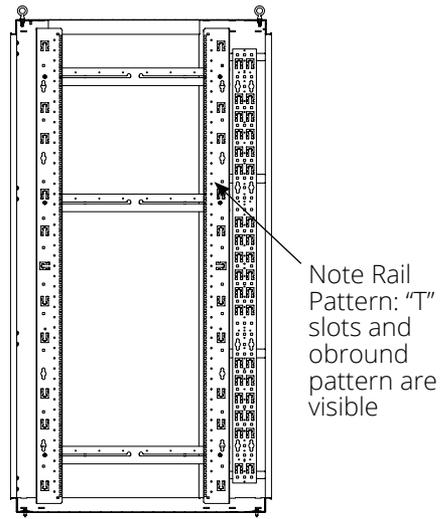


# 19" to 23" EIA MOUNTING, 30"W CABINETS

- Do not attempt to adjust rails once equipment has been loaded
1. REMOVE rail hardware along the top, center, and bottom horizontal
  2. Rotate the rail so that the second rail face with EIA mounting now faces the front of the cabinet; install and tighten all hardware
  3. Repeat for remaining rails, ensuring the rail face is orientated appropriately



Side rail view with 19" EIA



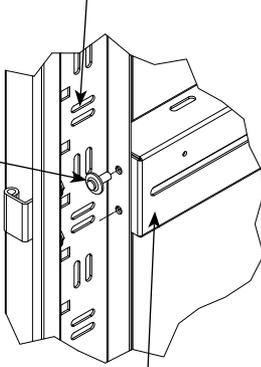
Side rail view with 23" EIA

# FRONT CORNER POST CABLE BAR

- The cabinet will ship with one vertical cable bar in each front corner of the cabinet
- The bar is secured at each cabinet horizontal

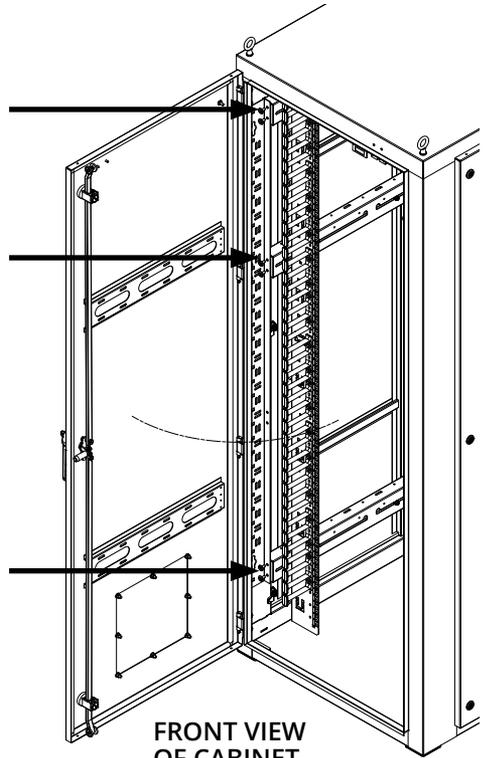
Front Corner Post Cable Management Bar

Hardware Included



Cabinet Horizontal,  
3 Locations

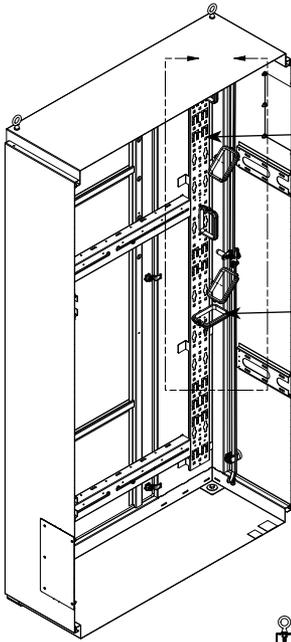
**DETAIL G**



**FRONT VIEW  
OF CABINET**

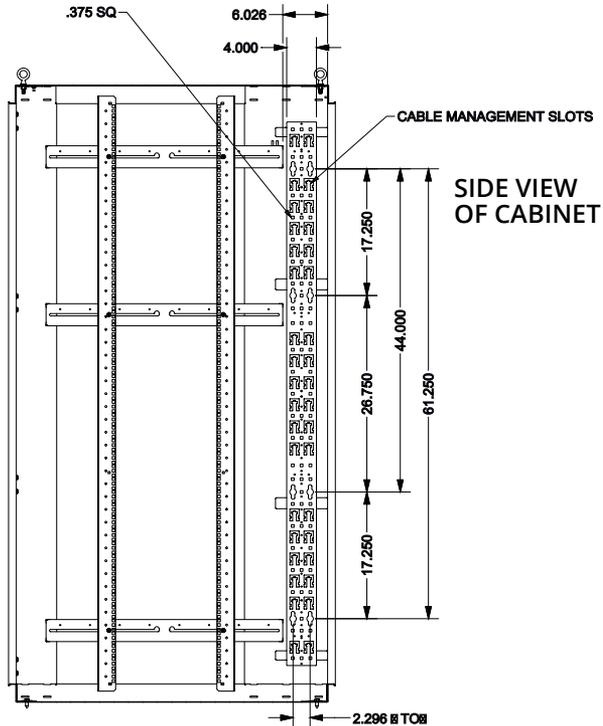
# REAR CABLE MANAGEMENT BAR/PDU MOUNTING.

- Each cabinet features two rear cable management bars, one welded in each rear corner
- Lacing bars feature a keyhole pattern for button mounting PDUs, "T" slots for cinch straps and square hole pattern for optional 1/4-turn "D" rings



Cable Management Bar Welded into Corner

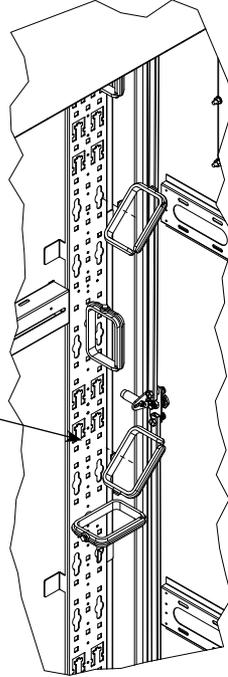
Shown with Optional 1/4 Turn "D" Rings



# 1/4 TURN "D" RINGS FOR USE WITH CABLE BARS & 30"W CABINET RAILS

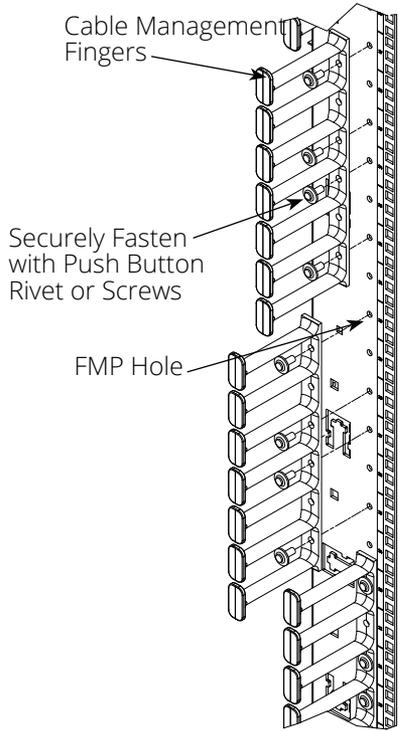
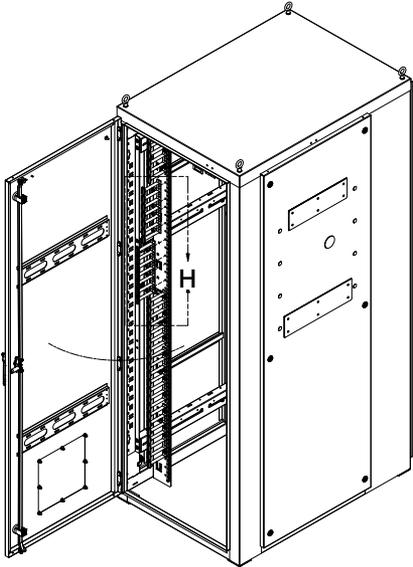
- All cable bars are designed with a square hole pattern to accept optional 1/4 turn "D" rings
  - CM-25: Kit of 10, 1/4 turn "D" rings, 1.5" x 3.5"
  - CM-26: Kit of 10, 1/4 turn "D" rings, 3.5" x 5"

At an angle, insert "D" ring into any square hole along rail or cable bar; rotate ring to a vertical or horizontal position



# CABLE MANAGEMENT FINGERS

- The cabinet will ship with 4" fingers installed on the front rails
- Fingers install on the front or rear face of any rail using the FMP holes
- If installing on front rails, rails must be recessed 5.5" to accommodate 4"D fingers or recessed 7.5" to accommodate 7"D fingers
- It is recommended that each set of fingers is installed using 4 points of attachment (with push-button rivets or screws and nuts), see **DETAIL H**



**DETAIL H**

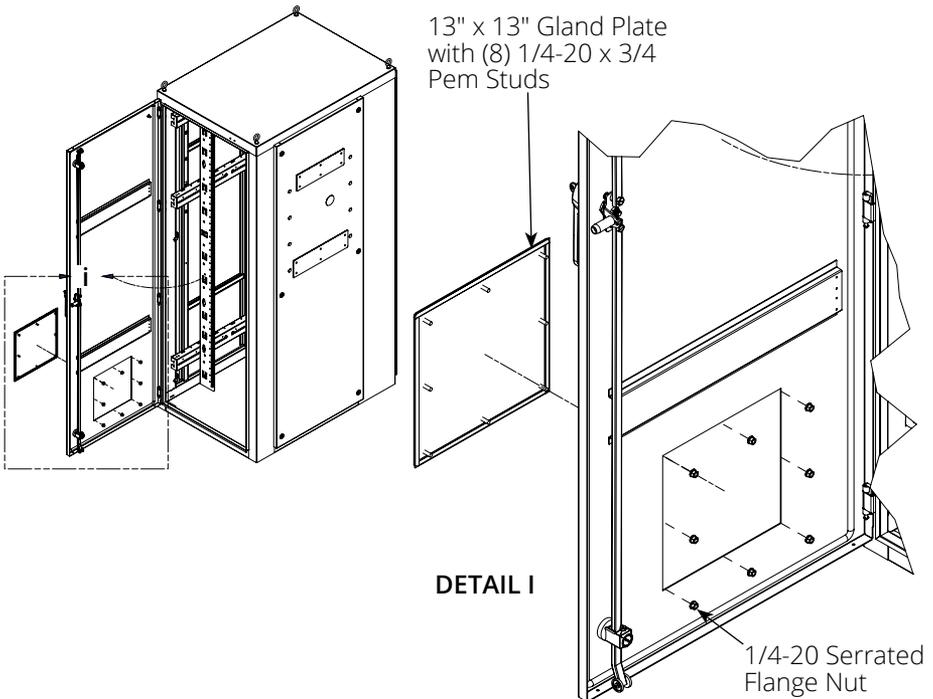
# FAN ASSEMBLY FILTER KITS

There are three fan/filter options for the GL840N12 cabinet.

- FFKN12-A1** Fan assembly (includes filter) & exhaust filter assembly, 230 CFM, 115V
- FFKN12-A2** Fan assembly (includes filter) & exhaust filter assembly, 295 CFM, 115V
- FFKN12-A3** Fan assembly (includes filter) & exhaust filter assembly, 368 CFM, 115V

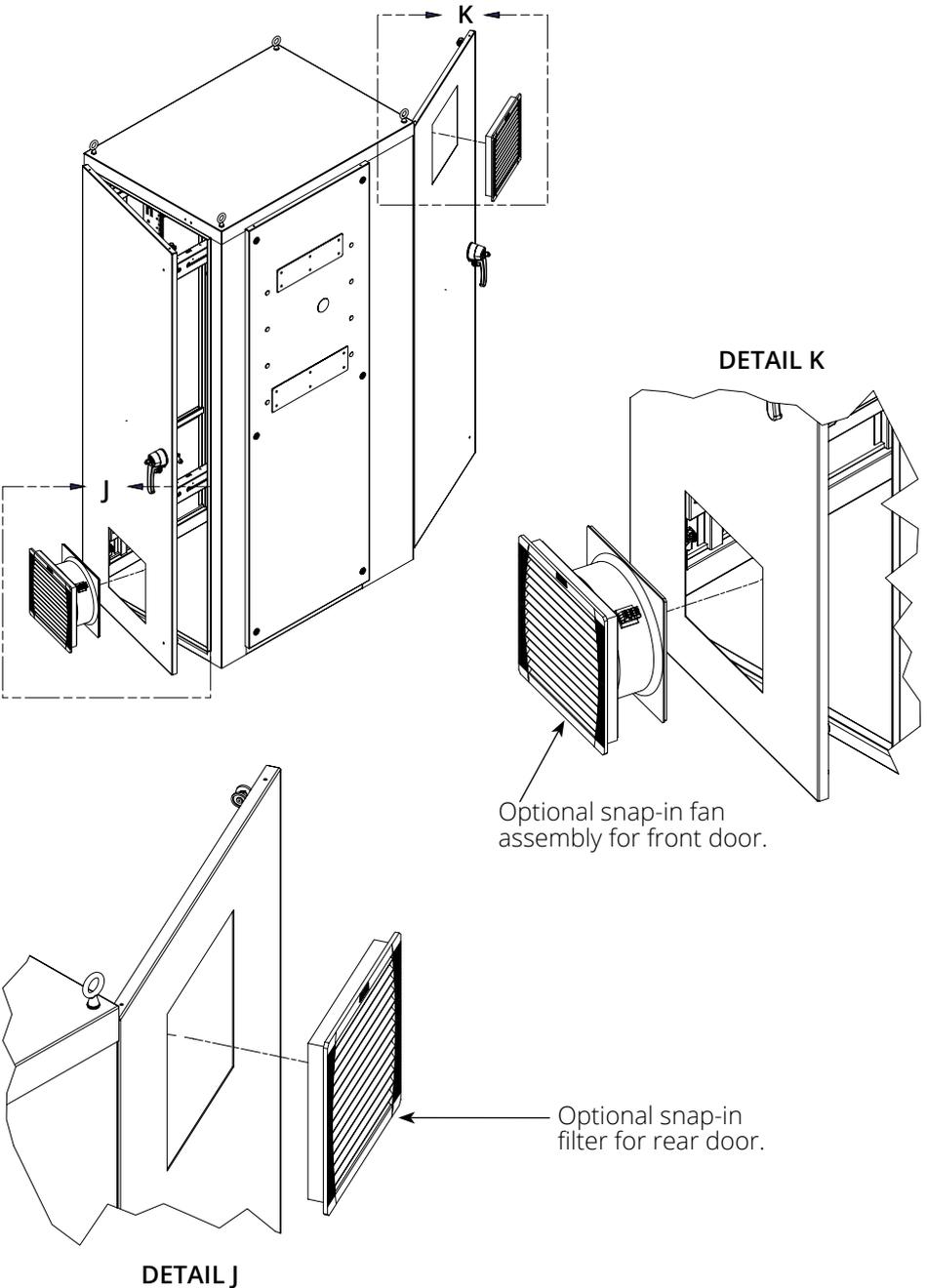
Fan/filter combinations ordered with the cabinet will be installed at the factory. Note: the fan will take up 5.75" of cabinet space behind the face of the door. Mounting rails will have to be moved back to allow for fan mounting and airflow. The fan will introduce air into the bottom of the cabinet and it will leave via the top rear filter assembly. Filters can be replaced by removing the front snap on cover of the fan and filter assemblies.

1. Remove the gland plate from the bottom of the front door and the top of the rear door.



# FAN ASSEMBLY FILTER KITS (continued)

2. Install the fan and feed the cord through the front door and snap in the fan assembly.
3. Install the filter assembly and snap it into the top rear door opening.



# A/C MOUNTING with SIDE PANEL "A", "B", and "C"

There are ten (10) air conditioners available for the GL840N12 cabinet.

Configure the cabinet with one of three side panels that will accept the following A/C units.

Side Panel "A" will accept:

- GL2500V A/C Unit, 120V, 2500 BTU, 7.3 amps
- GL3500V A/C Unit, 120V, 3500 BTU, 8.2 amps
- GL4500V A/C Unit, 120V, 4500 BTU, 9.5 amps
- GL6000V A/C Unit, 120V, 6000 BTU, 10.9 amps

Side Panel "B" will accept:

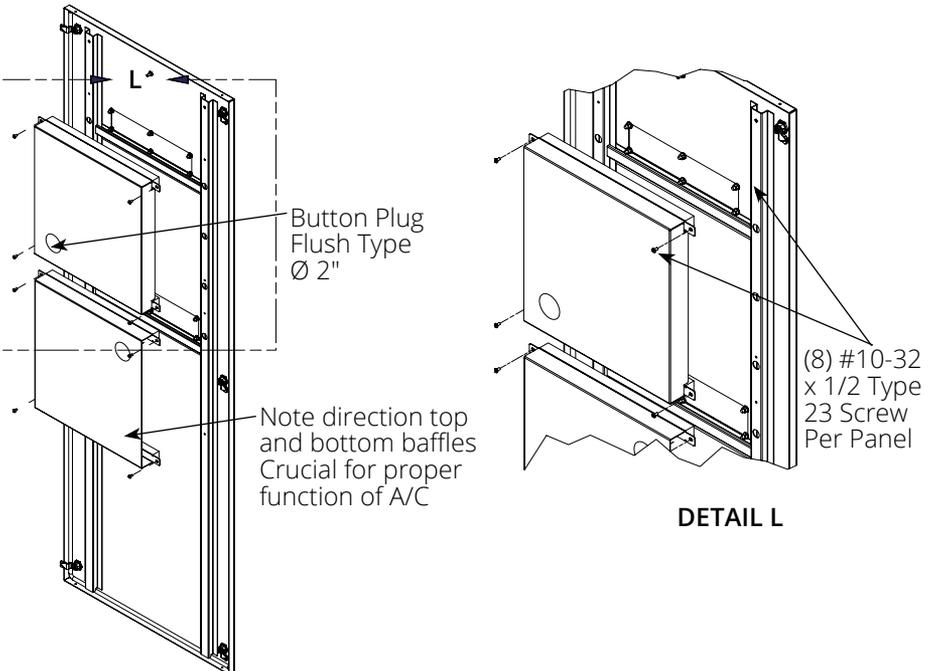
- GL8000VHA A/C Unit, 120V, 8000 BTU, 14.7 amps, designed for high ambient applications
- GL10000V A/C Unit, 120V, 10,000 BTU, 15.1 amps
- GL12000V A/C Unit, 120V, 12,000 BTU, 19.6 amps

Side Panel "C" will accept:

- GL14000V AC Unit, 230V, 14000 BTU, 15.0/16.5 amps
- GL17000V AC Unit, 230V, 17000 BTU, 15.5/17.1 amps
- GL20000V AC Unit, 230V, 20000 BTU, 18.2/20a amps

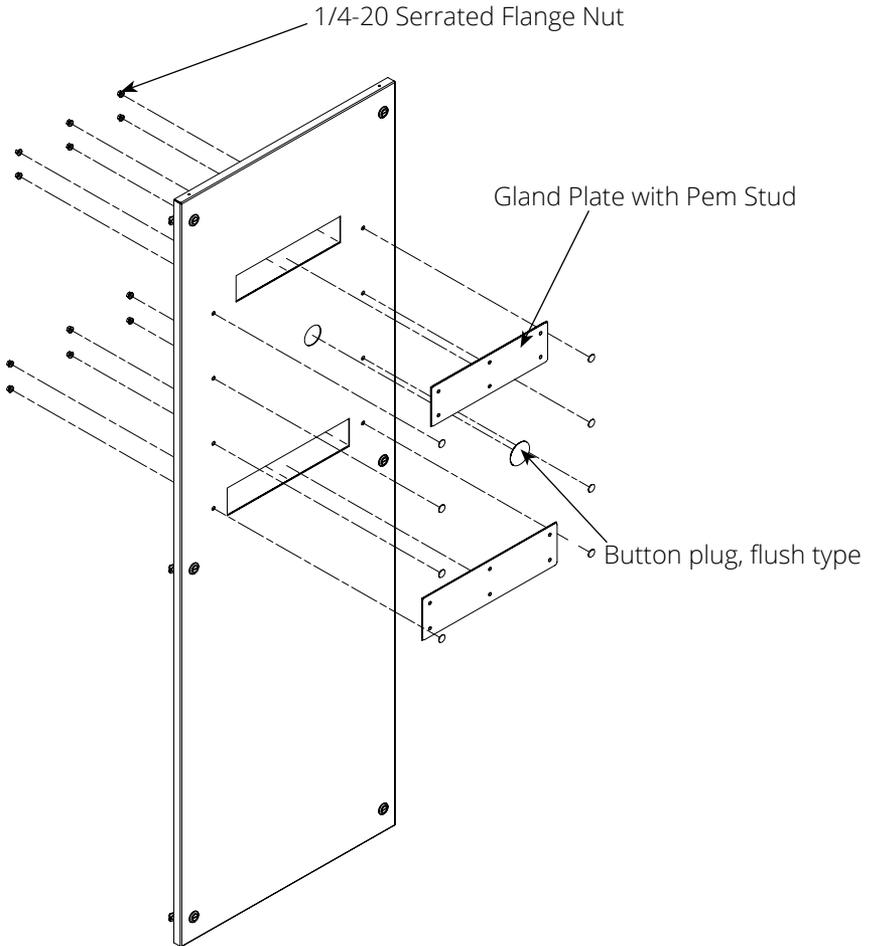
## BAFFLE KIT

Each side panel comes with a baffle kit that will be pre-installed at the factory. There are two baffles. One will direct conditioned air to the front of the cabinet, the other will allow return air back to the A/C unit.



## SIDE PANEL "A"

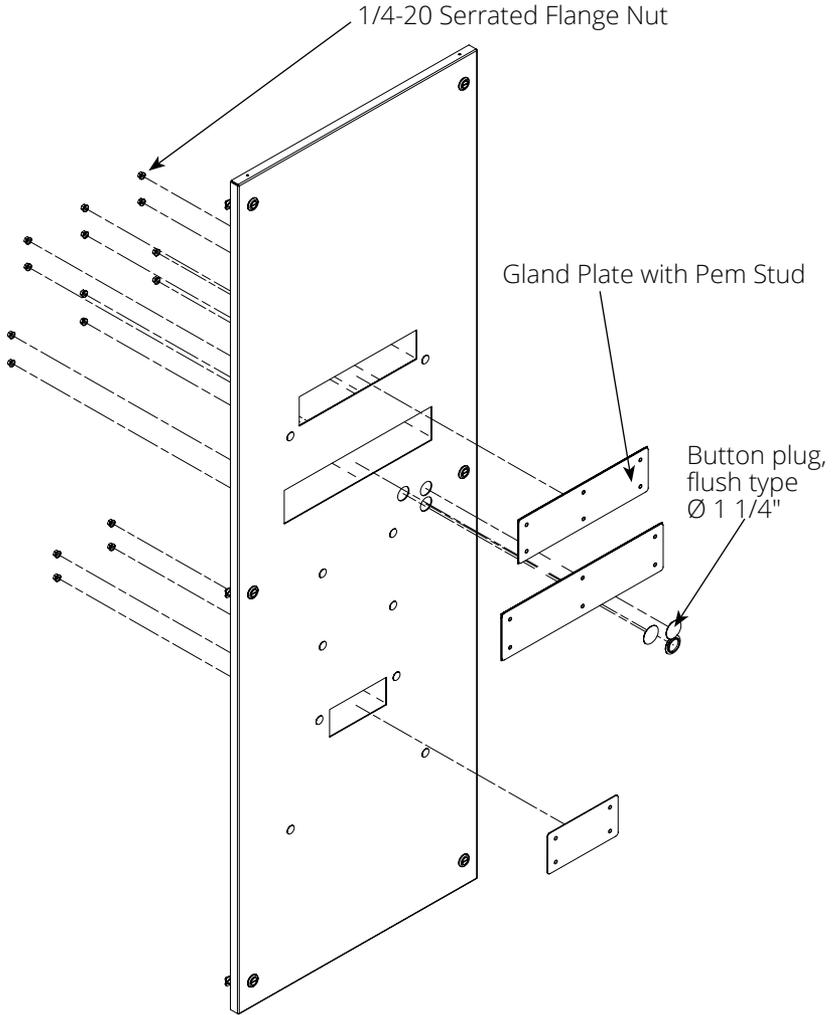
The AC unit cannot be pre-installed at the factory, it must be installed on-site. The side panels have been designed so that no drilling or cutting is required. Remove the gland plates and button plugs and the side panel is ready to accept the A/C unit.



This manual includes general AC mounting information on pages 20-22; for complete mounting instructions, locate specific instructions and follow them carefully to mount the AC unit.

**Important:** To prevent excessive condensation, it is recommended that you turn off the AC unit when working on equipment within the enclosure while door(s) are open.

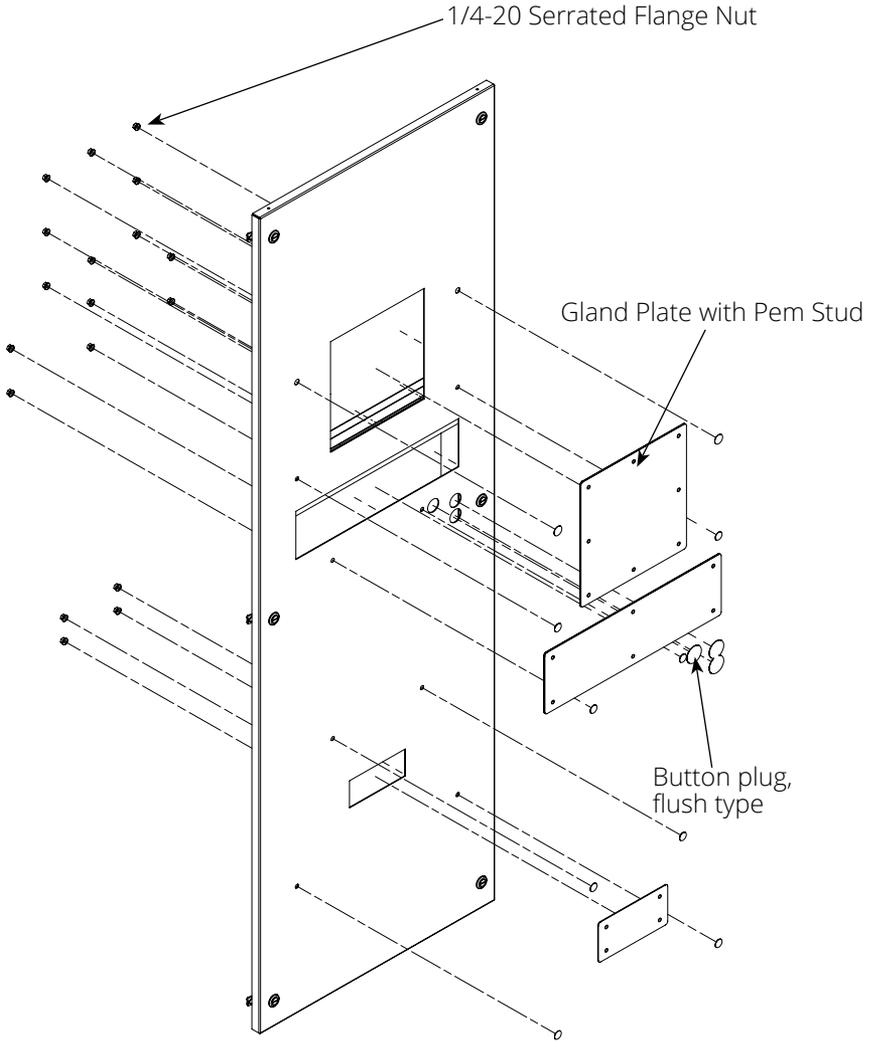
# SIDE PANEL "B"



This manual includes general AC mounting information on pages 20-22; for complete mounting instructions, locate specific instructions and follow them carefully to mount the AC unit.

**Important:** To prevent excessive condensation, it is recommended that you turn off the AC unit when working on equipment within the enclosure while door(s) are open.

# SIDE PANEL "C"



This manual includes general AC mounting information on pages 20-22; for complete mounting instructions, locate specific instructions and follow them carefully to mount the AC unit.

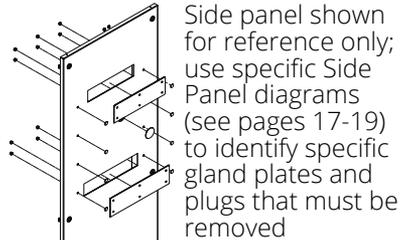
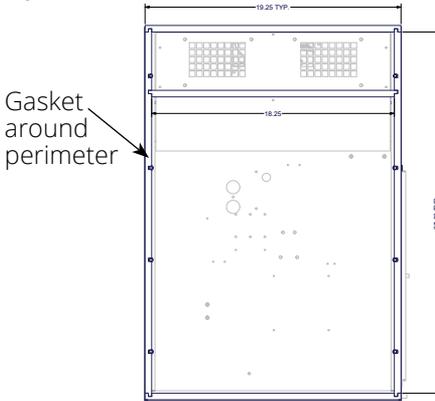
**Important:** To prevent excessive condensation, it is recommended that you turn off the AC unit when working on equipment within the enclosure while door(s) are open.

# AC INSTALLATION

**NOTE:** It is recommended that the AC unit is installed while the side panel is installed on the cabinet. If AC mounting locations are obstructed with populated equipment, panel can be removed for access.

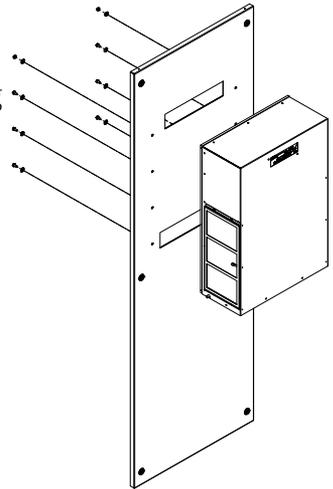
## STEP 1: PREPARE THE SIDE PANEL AND AC UNIT

- Use a screwdriver and 7/16 socket (or another suitable tool) to remove any gland plates and plugs on the side panels of the area where the AC unit is to be installed
- Apply included gasket on back of AC unit, around perimeter, as shown



## STEP 2: POSITION THE AC UNIT

- Ensure mating holes on the ac unit align with corresponding holes on the panel; hang AC unit on top 1/4-20 threads protruding from AC unit
- Use 7/16 socket to secure the AC unit in place with included hardware: 1/4-20 flange head nuts with washers on top (2) threads; 1/4-20 bolts with washers on bottom (6) threaded holes
- Ensure that all fasteners are tightened evenly to avoid stripping threads and causing an uneven gasket seal



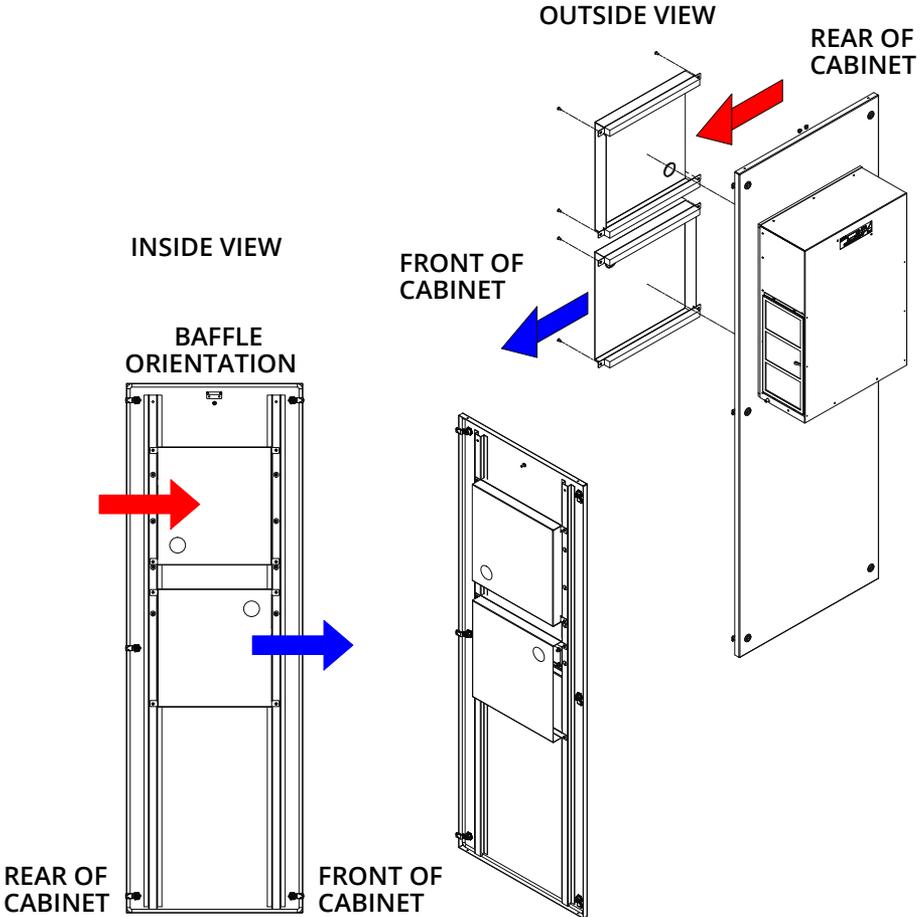
This manual includes general AC mounting information on pages 20-22; for complete mounting instructions, locate specific instructions and follow them carefully to mount the AC unit.

**Important:** To prevent excessive condensation, it is recommended that you turn off the AC unit when working on equipment within the enclosure while door(s) are open.

# AC INSTALLATION (CONTINUED)

## STEP 3: INSTALL THE AIR BAFFLES

- Baffles install on inside of side panel
- Baffles are crucial for proper airflow in and out of the AC unit
- Top and bottom baffles are the same components, but are oriented differently; Note baffle orientation to front and rear of the cabinet
- Each baffle is secured with (4) Phillips head screws (included)



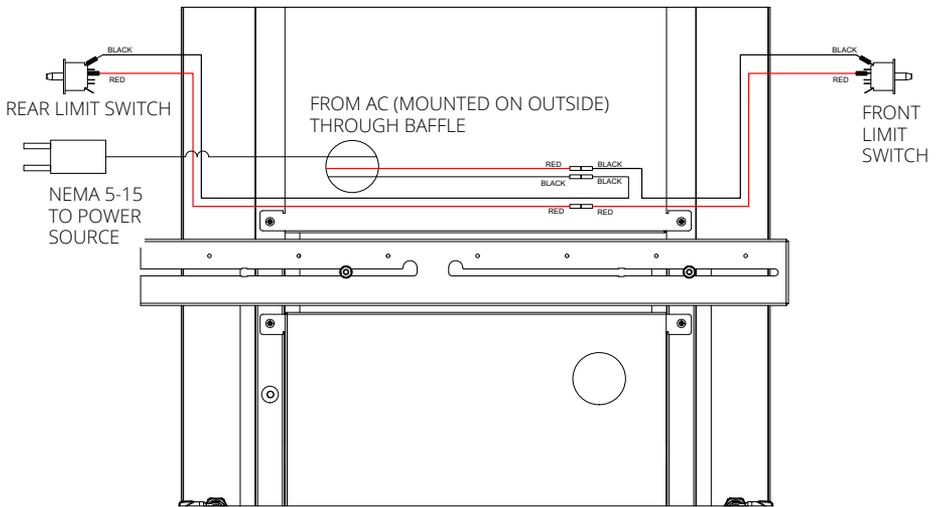
This manual includes general AC mounting information on pages 20-22; for complete mounting instructions, locate specific instructions and follow them carefully to mount the AC unit.

**Important:** To prevent excessive condensation, it is recommended that you turn off the AC unit when working on equipment within the enclosure while door(s) are open.

# AC INSTALLATION (CONTINUED)

## STEP 4: CONNECT THE WIRING HARNESS

- Identify the wire harness with male terminals and power cord coming off the AC unit
- Feed the wire harness and power cord through the side panel and removable hole plug in the top baffle
- Locate the harness attached to the inside of the cabinet
- Connect the female terminals to the male terminals;  
Note: The wiring creates a loop, black to black and black to red are interchangeable
- After connecting the AC wire harness, AC power cord can be connected to a power source
- Manage cables using zip ties and cable management clips as necessary to manage loose wires



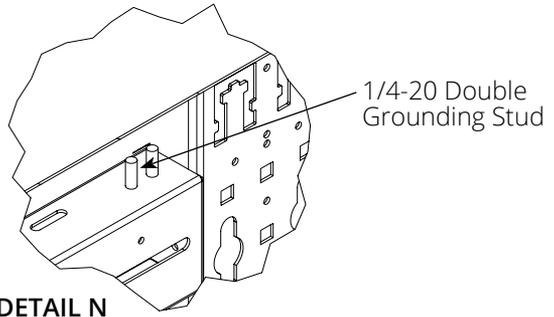
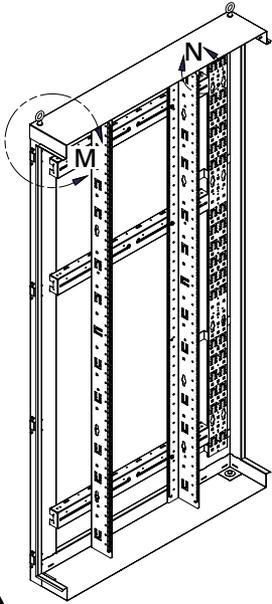
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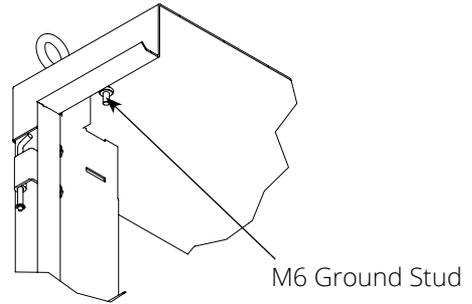
## PROTECTIVE GROUNDING

Protective grounding studs along with quick disconnect jumping wires can be found in the top and bottom left rear corners. To ground EIA equipment, it must be connected to a copper bus bar.

(sold separately, CBB-72)



DETAIL N



DETAIL M



**WARNING:** To avoid injury to persons or loss of life, ground each cabinet individually to the dedicated branch circuit ground.

### Connecting Main Protective Grounding Stud to the Dedicated Branch Circuit Ground

Connect the dedicated branch circuit ground connector to the main protective grounding stud located inside at the bottom rear of the cabinet frame using a listed ring or closed-loop terminal.

### Connecting Main Protective Grounding Stud to the Protective Bonding Conductors

Connect the rear doors to the main protective grounding studs located inside at the bottom and top rear of the enclosure chassis using a listed ring or closed-loop terminal. Connect the front door to the grounding stud located inside at the bottom front of the cabinet frame using a listed ring or closed-loop terminal.

### Parts Not Bonded to Protective Earthing Terminal

The following parts are not effectively bonded to the protective earthing terminal: rails and front to back rail horizontals. If these parts need to be bonded to the protective earthing terminal, do so in accordance with Article 250 of the National Electric Code.



**GREAT LAKES**  
DATA RACKS & CABINETS

Thank you  
for your  
business!



**ETSI Associate Member**

FORM: #MS - 5.02-26, REV #8